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ABSTRACT

This annual report contains information on federal funding of the research and development components of agency programs as proposed by the administration for Fiscal Year 1995. Research and development data are classified into the same federal budget function categories as those used in the "Budget of the United States Government, Fiscal Year 1995." The report is divided into three sections. Section 1, "Research and Development in the 1995 Budget: An Overview," provides an overview of federal funding of research and development within the context of requested total federal budget authority. It consists of five tables. Section 2, "R&D [Research and Development] by Specific Budget Function," summarizes activities conducted within each budget function. Programs within the five functional categories that account for 90% of the research and development sponsored by the federal government are discussed briefly while data on research and development activities within the remaining functional categories are presented in tabular form only. This section consists of 19 tables which provide a summary of research and development activities conducted within each federal budget function. Section 3 contains historical tables that present two historical data series: (a) Federal Research and Development Funding by Function for Fiscal Years 1955-1995 and (b) Federal Funding of Basic Research for Fiscal Years 1978-95. (ASK)

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Federal R&D Funding by Budget Function

Fiscal Years 1993-95

Special Report

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Division of Science Resources Studies
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Federal R&D Funding by Budget Function

Fiscal Years 1993-95

Special Report

Ronald L. Meeks, Principal Author

Division of Science Resources Studies
Directorate for Social, Behavioral and Economic Sciences

National Science Foundation

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NOTES TO THE READER

This annual report contains information on Federal funding of the research and development (R&D) components of agency programs, as proposed by the administration for fiscal year (FY) 1995. R&D data in this report are classified into the same Federal budget function categories used in the *Budget of the United States Government, Fiscal Year 1995*. Proposed FY 1995 funding levels are for budget authority (defined below), which is the basis for initial congressional action. Detailed data are also included on actual Federal funding of R&D in FY 1993 and on estimated funding of R&D in FY 1994.[1]

REPORT ORGANIZATION

These notes introduce the basic budget terms and concepts used in this report. The rest of the report is divided into three sections:

Research and Development in the 1995 Budget: An Overview provides an overview of Federal Funding of R&D within the context of requested total Federal budget authority. This section consists of five tables. Tables 1 through 4 provide an overview of Federal R&D funding within the context of requested total Federal budget authority. Table 5 details Federal R&D funding for national defense and civilian programs in current and constant 1987 dollars for FYs 1955-95.

R&D by Specific Budget Function summarizes activities conducted within each budget function. Programs within the five functional categories that account for 90 percent of the R&D sponsored by the Federal Government are discussed briefly; data on R&D activities within the remaining functional categories are presented in tabular form only. This section consists of 19 tables (tables 6 through 24) which provide a summary of R&D activities conducted within each Federal budget function.

Historical Tables presents two historical data series: (1) Federal R&D funding by function for fiscal years 1955-95 (tables 25a through 25g) and (2) Federal funding of basic research for fiscal years 1978-95 (tables 26a through 26c).

DEFINITIONS

Research and Development

As used in this report, R&D refers to research—both basic and applied—and development activities in the sciences and engineering.

Research is systematic study directed toward fuller scientific knowledge or understanding of the subject studied. Research is classified as either basic or applied according to the objective of the sponsoring agency.

- In **basic research** the objective of the sponsoring agency is to gain fuller knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications toward processes or products in mind.

- In **applied research** the objective of the sponsoring agency is to gain knowledge or understanding necessary for determining means by which a recognized and specific need may be met.

Development is the systematic use of the knowledge or understanding gained from research directed toward the production of useful materials, devices, systems, or methods, including design, development, and improvement of prototypes and new processes. It excludes quality control, routine product testing, and production.

Funds for conducting R&D include those for personnel, program supervision, and administrative support directly associated with R&D activities. Expendable or movable equipment needed to conduct R&D—e.g., microscopes or spectrometers—is also included.

[1] FY 1993 and 1994 data reflect rescissions and supplemental appropriations enacted after the submission of the President's FY 1995 budget request.

This report does not include data on R&D plant funds—i.e., funds for R&D facilities such as reactors, wind tunnels, or particle accelerators or for the construction, repair, or alteration of such facilities. Also excluded are all non-R&D activities performed within budget functions that conduct R&D and all functions in which no R&D is conducted.

Budget Authority, Obligations, and Outlays

The Federal R&D funding data presented here are, with a few noted exceptions, provided in budget authority. Budget authority is used because it is the initial budget parameter for congressional action on the President's proposed budget. Budget authority imposes a ceiling on obligations and outlays; obligations and outlays flow from budget authority.

- **Budget authority** is the primary source of legal authorization to enter into obligations that will result in outlays. Budget authority is most commonly granted in the form of appropriations by the congressional committees assigned to determine the budget for each function.

- **Obligations** represent the amounts for orders placed, contracts awarded, services received, and similar transactions during a given period, regardless of when the funds were appropriated and when the future payment of money is required.

- **Outlays** represent the amounts for checks issued and cash payments made during a given period, regardless of when the funds were appropriated or obligated.

Budget Functions

All activities covered by the Federal budget, including R&D, are classified into 20 broad functional categories. The Federal budget total comprises funding for these 20 functions. An agency's activities are not necessarily included in only one function. Instead, the programs of one agency typically are distributed across functions, and each function often includes programs from multiple agencies. No overlap occurs between functions or between the various agency programs within those functions. In a few cases components of a major national effort are funded through multiple functions, such as the Human Genome mapping effort (health and energy).

Notably, each specific R&D activity is assigned to only one function area, consistent with the official codes used in budget documents, even though the R&D activity may address several functional concerns. For example, except for those of the Army Corps of Engineers, all R&D activities sponsored by the Department of Defense (DoD) are classified as defense, even though some activities have secondary objectives such as space or health. Moreover, only R&D funded by the Department of Health and Human Services and the Department of Labor is classified in the health function category. Yet some R&D funding, from at least three agencies—DoD and the Departments of Energy and Veterans Affairs—has a major health component.

The functional categories and definitions used in this report are the same as those used in the Federal budget, with two exceptions. First, R&D activities categorized as general science, space, and technology (function 250) are reported separately here. Subfunction 251 contains R&D activities for general science and basic research, and subfunction 252 contains R&D activities for space research and technology. Not all federally sponsored basic research is categorized in function 251, however; some basic research is included in the remaining 19 functional categories. Second, although two civilian R&D programs at DOE were funded out of the department's defense appropriations (affecting 1992 and 1993), this report shows the funding under the civilian accounts for historical consistency.

Five Federal budget functions—Medicare (function 570), social security (function 650), net interest (function 900), allowances (function 920), and undistributed offsetting receipts (function 950)—have no R&D components. Consequently, they are not discussed in this report, except where R&D is described as a proportion of total Federal budget authority.

The Agency/Function Crosswalk on the following page lists—by name and function code—the 16 individual R&D functions funded by agencies.

Data Sources

Within the overall Federal Budget there is no separately identified R&D budget as such, nor are most appropriations for R&D so labeled except in the case of certain program areas, such as in defense, energy, health, and environment. Consequently, most funds for R&D are not line items in an agency's budget submission but are included within general program funding. To determine funding for Federal R&D, the Office of Management and Budget (OMB) requires agencies whose annual R&D funding is greater than $10 million to submit data on their R&D programs as part of their annual budget submissions. Specifically, the agencies provide data—reported, in accordance with OMB Circular A-11, on an Exhibit 44A, "Research and Development Activities"—on funding levels for basic research, applied research, development, R&D facilities, and R&D support to universities and colleges.

The data in this report represent agencies' best estimates of actual and proposed Federal funding for R&D collected during the period February 7 through May 20, 1994. These data are based primarily on information provided to OMB by 21 agencies and account for more than 99 percent of all federally sponsored R&D activities. Also incorporated in this report is R&D information that became available from the individual agencies after the administration's budget was prepared and reported in the *Budget of the United States Government*. Such information consists of agency budget justification documents submitted to Congress and supplemental, program-specific information obtained from agency budget and program staff through mid-May 1994. Therefore, budget numbers for individual activities, programs, or agencies may differ slightly from those published in the President's budget or agency budget documents.

AGENCY/FUNCTION CROSSWALK

Agencies	National Defense (050)	Health (550)	Space Research and Technology (252)	General Science (251)	Energy (270)	Transportation (400)	Natural Resources and Environment (300)	Agriculture (35)	Education, Training, Employment, and Social Services (500)	Veterans Benefits and Services (700)	International Affairs(150)	Commerce and Housing Credit (370)	Community and Regional Development (450)	Administration of Justice (750)	Income Security (600)	General Government (800)
Dept. of Defense (Military)	●															
Dept. of Health and Human Services		●							●						●	
National Aeronautics and Space Adm.			●			●										
Dept. of Energy	●			●	●											
Nat'l Science Foundation				●												
Dept. of Agriculture							●	●								
Department of the Interior							●									
Environmental Protection Agency							●									
Dept. of Transportation						●										
Dept. of Commerce							●					●	●			
Dept. of Veterans Affairs										●						
Agency for International Development											●					
Department of Education									●							
Nuclear Regulatory Commission					●											
Smithsonian Institution									●							
Tennessee Valley Authority					●								●			
Department of Treasury														●		●
Corps of Engineers (Civil)							●									
Department of Justice														●		
Department of Labor		●							●						●	
Dept. of Housing and Urban Development													●			

Research and Development in the 1995 Budget
An Overview

Total Research and Development

The administration has proposed total budget authority of $71.4 billion for research and development (R&D) programs in its 1995 budget, or 4 percent more than the estimated 1994 R&D total of $68.3 billion. After adjusting for expected inflation, R&D budget authority is proposed to increase by 2 percent.

Among individual functions, the largest R&D increase ($1.5 billion) is slated for defense (budget function code 050), which includes military programs of the Department of Defense and the atomic energy defense activities of the Department of Energy (DOE). The 1995 defense total—$39.5 billion—represents a 4-percent increase over 1994 levels (table 1).

Table 1. Federal R&D budget authority, by budget function, fiscal years 1993-95

1995 rank	Budget function	1993 actual 1/	1994 estimated 1/	1995 proposed	Percent change	
					1993-94	1994-95
		[In millions of dollars]				
	Total	69,884	68,311	71,361	-2.3	4.5
1	National defense	41,249	38,020	39,496	-7.8	3.9
2	Health	10,280	10,936	11,417	6.4	4.4
3	Space research and technology	6,988	7,212	7,665	3.2	6.3
5	General science	2,691	2,717	2,866	1.0	5.5
4	Energy	2,677	2,854	2,943	6.6	3.1
6	Transportation	1,703	1,892	1,999	11.1	5.7
7	Natural resources and environment	1,802	1,992	1,998	10.6	0.3
8	Agriculture	1,152	1,188	1,190	3.1	0.2
9	Commerce and housing credit	220	375	694	70.9	85.0
10	Education, training, employment, and social services	348	349	364	0.4	4.3
11	International affairs	382	321	314	-16.1	-2.1
12	Veterans benefits and services	250	270	231	7.7	-14.4
13	Community & regional development	57	72	81	25.7	12.6
14	Administration of justice	49	51	50	3.5	-0.5
15	Income security	36	61	50	68.2	-18.3
16	General government	(2/)	1	0	300.0	-100.0

1/ Fiscal year 1993 and 1994 estimates reflect rescissions enacted in Public Law 103-211.

2/ Less than $500,000.

NOTES: Because of rounding, components may not add to the totals shown. Percentage change is derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Total nondefense R&D budget authority is proposed to increase by $1.6 billion, to $31.9 billion. This level would represent a 5-percent increase from estimated 1994 levels. Highlights of proposed nondefense R&D funding follow.

- The administration proposes a 4-percent increase ($0.5 billion) in health-related R&D (function 550), to $11.4 billion in 1995. Most of this proposed growth is for the basic and applied biomedical and behavioral research programs of the National Institutes of Health (NIH), which will account for 95 percent of all Federal health R&D.

- R&D budget authority for space research and technology activities (subfunction 252) of the National Aeronautics and Space Administration (NASA) is proposed to increase by 6 percent, or by $0.5 billion in 1995, to $7.7 billion. One-third of the total is proposed for continuing space science support. R&D funding for the space station is proposed to decline slightly.

- Research funding for general science (subfunction 251) is proposed to increase by 6 percent, or by $0.1 billion in 1995, to $2.9 billion. Most of these dollars are slated for the National Science Foundation (NSF). However, funding for DOE general science programs is proposed to decrease.

- A 3-percent increase ($0.1 billion) is proposed for energy R&D (function 270), to $2.9 billion in 1995. Energy R&D will comprise 4 percent of total Federal R&D budget authority.

- Natural resources and the environment R&D funding (function 300) is proposed to increase by less than 1 percent, to $2 billion in 1995. Within this functional category the largest gain is proposed for the Environmental Protection Agency's multimedia (i.e., interdisciplinary) research efforts, followed by moderate increases planned for the Forest Service's conservation and land management programs and for recreational resources at the Department of the Interior's National Biological Survey.

- Transportation R&D funding (function 400) is proposed to increase by 6 percent, to $2 billion. Most of the increase is slated for aviation research by NASA. Funding for ground transportation R&D, however, also is proposed to increase significantly.

- Funding for agricultural R&D (subfunction 352) is proposed to increase in 1995 by less than 1 percent, to $1.2 billion. Agricultural R&D will account for 2 percent of the total Federal R&D budget authority.

- The remaining eight functions each have less than $0.7 billion in proposed 1995 R&D budget authority. Overall, R&D for these functions will increase by 19 percent ($0.3 billion), to $1.8 billion.

  - R&D for commerce and housing credit (subfunction 376) will increase by 85 percent ($319 million), to $694 million. This total reflects increased support for the generic applied research and technology development programs of the National Institute of Standards and Technology. Funding for general education programs (subfunctions 501-3) of the Department of Education and the Smithsonian Institution will increase by 3 percent ($6 million), to $240 million.

  - R&D increases (13 percent) also are proposed for programs in community and regional development (function 450). Major funders to this budget function are the Tennessee Valley Authority and the Department of Housing and Urban Development.

  - R&D funding will decrease in international affairs (function 150), veterans benefits and services (function 700), administration of justice (function 750), income security (function 600), and general government (function 800).

BASIC RESEARCH

The administration proposes to increase budget authority for basic research by 4 percent in 1995 to $14.2 billion (table 2). When adjusted for expected inflation, this would be a 1-percent increase from the estimated 1994 level. The basic research share of total R&D budget authority has steadily increased from 15 percent in 1986 to the proposed 20 percent in 1995.

The largest five R&D functions—defense, health, space, general science, and energy—are also the largest basic

Table 2. Budget authority for basic research, by budget function, fiscal years 1993-95

1995 rank	Budget function	1993 actual	1994 estimated 1/	1995 proposed	Percent change	
					1993-94	1994-95
		[In millions of dollars]				
	Total	13,440	13,743	14,219	2.3	3.5
4	National defense	1,323	1,212	1,232	-8.3	1.6
1	Health	5,700	5,977	6,270	4.9	4.9
3	Space research and technology	1,588	1,662	1,672	4.6	0.6
2	General science	2,553	2,559	2,691	0.2	5.2
5	Energy	917	950	990	3.6	4.2
8	Transportation	238	232	194	-2.7	-16.3
7	Natural resources and environment	376	379	366	1.0	-3.6
6	Agriculture	553	572	587	3.5	2.5
10	Commerce and housing credit	34	37	49	9.1	31.7
9	Education, training, employment, and social services	121	125	132	3.5	6.0
13	International affairs	8	6	7	-28.8	15.1
11	Veterans benefits and services	16	16	14	3.8	-16.6
12	Community & regional development	10	10	12	6.3	12.4
14	Administration of justice	5	5	5	13.0	-11.5
15	Income security	0	(2/)	(2/)	NA	0.0
16	General government	0	0	0	NA	NA

1/ Fiscal year 1994 estimates reflect rescissions enacted in Public Law 103-211.

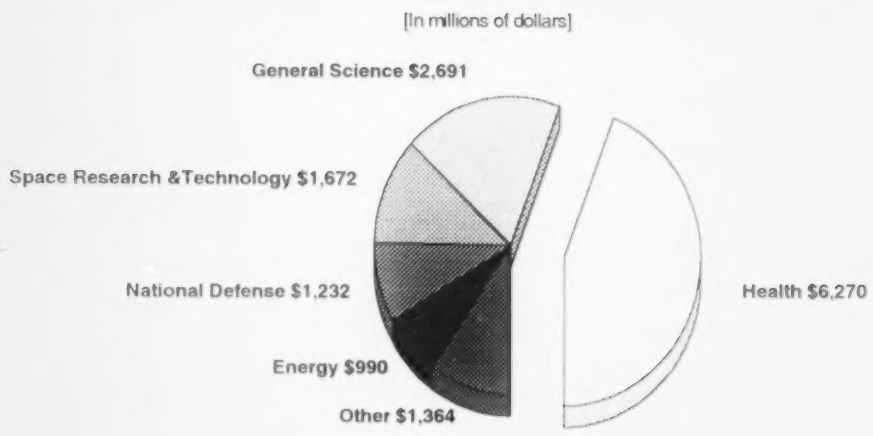
2/ Less than $500,000.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

research functions. They account for 90 percent of the basic research total (chart 1). Health ($6.3 billion) accounts for the largest share (44 percent) of the requested 1995 basic research total, followed by general science ($2.7 billion) and space research and technology ($1.7 billion). Defense accounts for $1.2 billion—or 9 percent—of the proposed basic research total, but only 3 percent of the defense R&D total is basic research. Of the nondefense R&D total, 41 percent is basic research.

Chart 1. Federal R&D budget authority for basic research, by budget function: 1995



SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; supplemental data obtained from the agencies' budget offices.

Share of Total Budget Authority Devoted to R&D

For functions that include R&D activities, the proportion of total budget authority requested for R&D varies considerably, from a high of 67 percent for general science to less than 0.1 percent for income security and general government (table 3).

Besides general science, only energy (62 percent) and space research and technology (59 percent) have one-half or more of their total funds proposed for 1995 directed toward R&D. Fifteen percent of defense-related funding, 12 percent of commerce and housing credit, and 10 percent of total health funding are proposed for R&D. Each of the remaining 10 functions has less than 10 percent of its total budget allocated for R&D. In five of these functions, R&D accounts for less than 1 percent of total funds.

Distribution of Total R&D Budget Authority Among Functions

The five largest R&D functions in 1995—defense, health, space, general science, and energy—account for 90 percent of all proposed Federal R&D budget authority. Transportation, natural resources and the environment, agriculture, and commerce and housing credit each account for between 1 and 3 percent of Federal funding of R&D. The remaining seven functions each

Table 3. R&D budget authority as a percentage of each function's total budget authority, fiscal years 1993-95

1995 rank	Budget function	1993 actual	1994 estimated1/	1995 proposed
	All functions conducting R&D	8.0	7.9	8.2
4	National defense	14.7	14.6	15.0
5	Health	9.5	9.4	9.6
3	Space research and technology	53.5	55.8	58.8
2	General science	64.5	59.1	67.0
1	Energy	32.4	60.2	62.4
6	Transportation	4.2	4.9	4.8
8	Natural resources and environment	8.3	9.0	9.3
7	Agriculture	6.0	7.4	9.2
11	Commerce and housing credit	2.9	1.6	11.7
9	Education, training, employment, and social services	0.7	0.7	0.6
12	International affairs	1.2	1.7	1.7
14	Veterans benefits and services	0.7	0.7	0.6
10	Community & regional development	0.6	0.9	0.9
13	Administration of justice	0.3	0.3	0.3
16	Income security	(2/)	(2/)	(2/)
15	General government	(2/)	(2/)	(2/)

1/ Fiscal year 1994 estimates reflect rescissions and supplementals enacted in Public Law 103-211.
2/ Less than one-tenth of 1 percent

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; supplemental data obtained from the agencies' budget offices; Office of Management and Budget, Budget of the United States Government, fiscal year 1995, Analytical Perspectives, Washington, DC: Feb. 1994 (table 7-1).

account for less than 1 percent of the total 1995 proposed R&D budget authority (table 4).

During the early and mid-1980s, practically all growth in Federal R&D support was defense related (chart 2). Since 1986, however, defense R&D has dropped significantly from its peak 69-percent share of the Federal total to the proposed 55-percent share for 1995 (table 5). Despite this decline, defense is proposed to receive three times the budget authority for R&D than the next largest function, health.

Table 4. Distribution of total R&D budget authority, by function, fiscal years 1993-95

[In percentages]

1995 rank	Budget function	1993 actual	1994 estimated 1/	1995 proposed
	Total	100.0	100.0	100.0
1	National defense	59.0	55.7	55.3
2	Health	14.7	16.0	16.0
3	Space research and technology	10.0	10.6	10.7
4	General science	3.9	4.0	4.0
5	Energy	3.8	4.2	4.1
6	Transportation	2.4	2.8	2.8
7	Natural resources and environment	2.6	2.9	2.8
8	Agriculture	1.6	1.7	1.7
9	Commerce and housing credit	0.3	0.5	1.0
10	Education, training, employment, and social services	0.5	0.5	0.5
11	International affairs	0.5	0.5	0.4
12	Veterans benefits and services	0.4	0.4	0.3
13	Community & regional development	0.1	0.1	0.1
14	Administration of justice	0.1	0.1	0.1
15	Income security	0.1	0.1	0.1
16	General government	(2/)	(2/)	(2/)

1/ Fiscal year 1994 estimates reflect rescissions and supplementals enacted in Public Law 103-211.

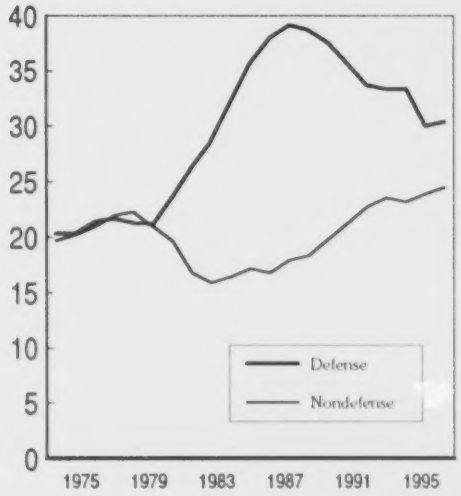
2/ Less than one-tenth of 1 percent

NOTE: Because of rounding, components may not add to totals.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Chart 2. Federal budget authority for defense and nondefense R&D: FYs 1975-95

[Billions of constant 1987 dollars]



SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 5. Federally funded R&D for national defense and civilian functions: fiscal years 1955-95

Fiscal year	Current dollars			Constant 1987 dollars 1/			Percent of total	
	Total	National defense	Civilian functions	Total	National defense	Civilian functions	National defense	Civilian functions
	[In millions of dollars]							
1955	2,533	2,151	382	11,208	9,518	1,690	84.9	15.1
1956	2,988	2,535	453	12,769	10,833	1,936	84.8	15.2
1957	3,932	3,327	605	16,181	13,691	2,490	84.6	15.4
1958	4,570	3,801	769	18,353	15,265	3,088	83.2	16.8
1959	6,694	5,556	1,138	26,251	21,788	4,463	83.0	17.0
1960	7,552	6,107	1,445	28,935	23,398	5,536	80.9	19.1
1961	9,059	7,005	2,054	34,445	26,635	7,810	77.3	22.7
1962	10,290	7,238	3,052	38,396	27,007	11,388	70.3	29.7
1963	12,495	7,764	4,731	45,938	28,544	17,393	62.1	37.9
1964	14,225	7,829	6,396	51,540	28,366	23,174	55.0	45.0
1965	14,614	7,342	7,272	51,640	25,943	25,696	50.2	49.8
1966	15,320	7,536	7,784	52,646	25,897	26,749	49.2	50.8
1967	16,529	8,566	7,963	54,914	28,458	26,455	51.8	48.2
1968	15,921	8,275	7,646	51,029	26,522	24,506	52.0	48.0
1969	15,641	8,356	7,285	47,686	25,476	22,210	53.4	46.6
1970	15,339	7,981	7,358	44,332	23,066	21,266	52.0	48.0
1971	15,543	8,110	7,433	42,818	22,342	20,477	52.2	47.8
1972	16,496	8,902	7,594	43,183	23,304	19,880	54.0	46.0
1973	16,800	9,002	7,798	41,791	22,393	19,398	53.6	46.4
1974	17,410	9,016	8,394	40,208	20,822	19,386	51.8	48.2
1975	19,039	9,679	9,360	39,998	20,334	19,664	50.8	49.2
1976	20,780	10,430	10,350	40,586	20,371	20,215	50.2	49.8
1977	23,450	11,864	11,586	42,329	21,415	20,913	50.6	49.4
1978	25,976	12,899	13,077	43,584	21,643	21,941	49.7	50.3
1979	28,208	13,791	14,417	43,598	21,315	22,283	48.9	51.1
1980	29,739	14,946	14,793	42,123	21,170	20,953	50.3	49.7
1981	33,735	18,413	15,322	43,361	23,667	19,694	54.6	45.4
1982	36,115	22,070	14,045	43,200	26,400	16,800	61.1	38.9
1983	38,768	24,936	13,832	44,561	28,662	15,899	64.3	35.7
1984	44,214	29,287	14,927	48,640	32,219	16,421	66.2	33.8
1985	49,887	33,698	16,189	52,902	35,735	17,168	67.5	32.5
1986	53,249	36,926	16,323	54,839	38,029	16,811	69.3	30.7
1987	57,069	39,152	17,917	57,069	39,152	17,917	68.6	31.4
1988	59,106	40,099	19,007	57,052	38,706	18,347	67.8	32.2
1989	62,115	40,665	21,450	57,408	37,583	19,824	65.5	34.5
1990	63,781	39,925	23,856	56,947	35,647	21,300	62.6	37.4
1991	65,898	39,328	26,570	56,420	33,671	22,748	59.7	40.3
1992	68,398	40,083	28,315	56,856	33,319	23,537	58.6	41.4
1993 2/	69,884	41,249	28,635	56,587	33,400	23,187	59.0	41.0
1994 2/	68,311	38,020	30,292	53,959	30,031	23,927	55.7	44.3
1995	71,361	39,496	31,865	54,851	30,358	24,493	55.3	44.7

1/ Calculated using fiscal year GDP implicit price deflators with 1987 as the base year.

2/ Fiscal year 1993 and 1994 estimates reflect rescissions and supplementals enacted in Public Law 103-211.

NOTES: The national defense function includes Department of Defense's military activities and Department of Energy's atomic energy defense programs. Civilian functions include all other Federally funded R&D activities. Data for 1955-77 are obligations. Data for 1978-93 are actual budget authority. Data for FY 1994 are estimates of budget authority. Data for 1995 are budget authority proposed by the administration.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

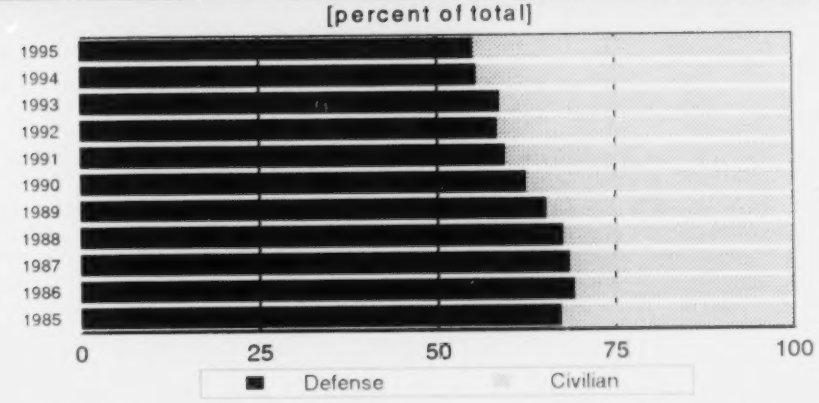
R&D BY SPECIFIC BUDGET FUNCTION

NATIONAL DEFENSE

Total R&D budget authority request for national defense (function 050) in 1995 is $39.5 billion, which would reflect an increase of $1.5 billion—or 4 percent—from estimated 1994 levels. This function consists of the Department of Defense's research, development, test, and evaluation (RDT&E) programs and the atomic energy defense activities of the Department of Energy. The defense function accounts for 55 percent of the total Federal proposed R&D funding in 1995—14 percentage points less than in 1986 (chart 3).

- R&D funds for all DoD mission areas are proposed to increase by 4 percent, to $37 billion, and account for 94 percent of 1995 defense R&D budget authority. DOE defense R&D programs are proposed to fall by almost 3 percent, to $2.5 billion.

Chart 3. Federally funded R&D for national defense and civilian functions: fiscal years 1985-95



SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

- Proposed budget authority for defense basic research is $1.2 billion, 2 percent above the 1994 level. DoD accounts for 94 percent of the defense basic research total.
- Within DoD, the largest gains are proposed for the Air Force (up 2 percent, to $12.3 billion in 1995) and Navy (up 8 percent, to $8.9 billion). Army RDT&E is proposed to decline—primarily for tactical programs—by 3 percent, to $5.3 billion. R&D programs within DoD's 13 Defense Agencies are proposed to increase by 9 percent, to $9.4 billion.
- The Ballistic Missile Defense Organization (BMDO) and the Advanced Research Projects Agency (ARPA) will account for 60 percent of the R&D programs within the Defense Agencies. The budget request for the R&D portion of BMDO will increase by 14 percent, to $3.0 billion. The BMDO request reflects a change of focus toward Theater Missile Defenses and away from Ballistic Missile Defense. ARPA will show a modest 2-percent rise in funds, to $2.7 billion. However, ARPA has taken on the explicit mission of developing technologies with both commercial and military applications. ARPA's Technology Reinvestment Project (TRP), which promotes dual-use technologies through competitively selected projects supported jointly by ARPA and the private sector, is one of the key DoD conversion programs.
- Among DOE atomic energy defense activities, the largest reduction is proposed for weapons research, development, and testing (down $110 million, to $1.4 billion), much of which is performed by the three DOE National Laboratories: Los Alamos, Sandia, and Lawrence Livermore. Increases are proposed for R&D related to naval reactors development, environmental restoration and waste management, intelligence, and national security.

Table 6. R&D budget authority for national defense (050), fiscal years 1993-95

Agency	1993 actual 1/	1994 estimated 1/	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	41,249	38,020	39,496	3.9
Department of Defense--military (051)	38,567	35,427	36,971	4.4
Research, development, test, and evaluation (RDT&E)	37,917	34,721	36,225	4.3
Department of the Army	6,057	5,421	5,260	-3.0
Department of the Navy	8,914	8,255	8,935	8.2
Department of the Air Force	12,929	12,146	12,349	1.7
Defense agencies	9,746	8,656	9,417	8.8
Ballistic Missile Defense Org	3,628	2,607	2,980	14.3
Advanced Research Projects Agency	2,279	2,599	2,662	2.4
Other defense agencies	3,839	3,449	3,775	9.5
Developmental test & evaluation	259	232	251	8.5
Operational test & evaluation	12	11	13	9.2
Other military funding 2/	650	706	746	5.6
Department of Energy--atomic energy defense activities (053)	2,682	2,592	2,525	-2.6
Weapons research, development, and testing 3/	1,591	1,474	1,364	-7.5
Naval reactors development	617	602	632	5.0
Nuclear materials support	46	33	24	-27.3
Environmental restoration and waste management	204	245	260	6.5
Intelligence and national security	195	212	220	4.0
Nuclear safeguards and security	25	23	20	-12.0
Office of Intelligence	4	4	4	-2.3

1/ Fiscal year 1993 and 1994 data reflect rescissions enacted in Public Law 103-211.

2/ Adjustment to R&D budget to exclude major construction and add appropriate personnel costs in direct support of conduct of R&D, and other appropriations.

3/ For fiscal year 1993, excludes funding for the Los Alamos Meson Physics Facility, which was provided in Department of Energy's Weapons R&D appropriation instead of General Science (function 251).

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: Departments of Defense (DoD) and Energy (DOE) submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; DoD's "RDT&E Programs (R-1):" Budget of the United States Government and supplemental data obtained from the DOE budget office.

Table 7. Total obligational authority (TOA) for Department of Defense (DOD) research, development, test, and evaluation (RDT&E) budget, fiscal years 1993-95

Funding category and agency	1993 actual	1994 estimated 1/	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total RDT&E (budget authority)	37,917	34,721	36,225	4.3
Total RDT&E (TOA)	37,778	34,924	36,225	3.7
Basic research	1,314	1,205	1,225	1.7
Department of the Army	215	207	214	3.3
Department of the Navy	426	413	435	5.4
Department of the Air Force	235	240	236	-1.7
Defense agencies	439	345	340	-1.4
Exploratory development	3,549	2,743	2,984	8.8
Department of the Army	735	632	563	-10.9
Department of the Navy	578	463	517	11.8
Department of the Air Force	617	611	686	12.3
Defense agencies	1,619	1,038	1,218	17.3
Advanced technology development	6,282	6,245	5,117	-18.1
Department of the Army	865	525	516	-1.7
Department of the Navy	440	417	421	0.9
Department of the Air Force	694	480	485	1.1
Defense agencies	4,284	4,823	3,696	-23.4
Demonstration/validation	4,212	2,698	3,771	39.8
Department of the Army	647	544	409	-24.8
Department of the Navy	1,938	1,722	1,569	-8.9
Department of the Air Force	388	235	434	84.7
Defense agencies	1,239	197	1,358	591.3
Engineering manufacturing development	8,487	7,441	8,916	19.8
Department of the Army	1,820	1,711	1,734	1.3
Department of the Navy	2,215	1,713	2,335	36.4
Department of the Air Force	4,365	3,952	4,545	15.0
Defense agencies	86	65	302	364.4

See explanatory information and SOURCE at end of table

Table 7. Total obligational authority (TOA) for Department of Defense (DOD) research, development, test, and evaluation (RDT&E) budget, fiscal years 1993-95

Funding category and agency	1993 actual	1994 estimated 1/	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Management support	3,398	3,168	3,343	5.5
Department of the Army	1,365	1,150	1,173	2.0
Department of the Navy	785	756	691	-8.6
Department of the Air Force	839	818	815	-0.4
Defense agencies	138	201	400	99.5
Developmental test & evaluation	259	232	251	8.5
Operational test & evaluation	12	11	13	9.2
Operational system development	10,536	11,424	10,869	-4.9
Department of the Army	411	652	652	0.0
Department of the Navy	2,486	2,818	2,966	5.3
Department of the Air Force	5,680	5,917	5,149	-13.0
Defense agencies	1,960	2,037	2,103	3.2
Adjustment for RDT&E budget authority	139	-203	0	NA

1/ Fiscal year 1994 estimates reflect rescissions enacted in Public Law 103-211.

NOTES: Detailed budget information on DOD's RDT&E activities is available only in total obligational authority (TOA), which is the sum of new budget authority, unobligated budget authority from previous years, and other authorized credits. Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Data from DoD, "RDT&E Programs (R-1)." Total RDT&E budget authority data from "Budget of the United States Government," appendix pp. 311-316.

HEALTH

The administration proposes a 4-percent increase for R&D health programs (function 550). The proposed $11.4 billion 1995 health total accounts for 16 percent of all Federal R&D. The health share has grown fairly steadily since 1986, when it was 10 percent of total. The Department of Health and Human Services (HHS) funds all R&D classified for health care services and health research and training (subfunctions 551 and 552). R&D funding for consumer and occupational health and safety (subfunction 554) is provided by HHS and the Department of Labor's Occupational Safety and Health Administration.

- The health function accounts for 44 percent of all Federal basic research support. The $6.3 billion proposed for health-related basic research is 5 percent more than the 1994 level.

- A 5-percent increase, to $529 million, is proposed for R&D support to be provided by the National Institutes of Health. Totaling $10.9 billion, these programs would account for 95 percent of all health R&D funding. The primary mission of NIH is to advance national capabilities for prevention, diagnosis, and treatment of disease through biomedical and behavioral research.

- Within NIH the largest share of R&D funding is proposed for the National Cancer Institute ($2.1 billion), followed by the National Heart, Lung, and Blood Institute ($1.3 billion). HIV/AIDS-related research, conducted by nearly all the institutes and centers, is expected to receive an increase of $78 million (6 percent), to a total $1.4 billion. With few exceptions, 4- to 6-percent increases are proposed for each of the 18 Institutes and Centers comprising NIH. R&D for the NIH Director's Office is proposed to increase by 11 percent, to $244 million, primarily to continue funding the Women's Health Study and the Minority Health Study. In addition, HHS R&D support for the Human Genome mapping effort is proposed to increase 20 percent, to $149 million in 1995.

- A 1-percent increase, to $1[illegible] million, is proposed for consumer and occupational health and safety in 1995. The Food and Drug Administration accounts for 97 percent of these funds.

Table 8. R&D budget authority for health (550), fiscal years 1993-95

Agency	1993 actual	1994 estimated 1/	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	10,279	10,936	11,417	4.4
Health care services and health research (551, 552)	10,122	10,764	11,243	4.5
Department of Health and Human Services (DHHS):				
National Institutes of Health	9,765	10,322	10,851	5.1
Centers for Disease Control	163	203	203	0.0
Agency for Health Care Policy and Research	115	141	110	-22.0
Health Care Financing Administration	69	86	69	-20.2
Health Resources and Services Administration	10	10	9	-15.5
Assistant Secretary for Health	1	1	1	-2.5
Consumer and occupational health and safety (554)	157	172	174	1.1
Food and Drug Administration (DHHS)	155	168	169	0.2
Occupational and Safety Health Administration (Dept. of Labor)	3	4	5	43.2

1/ Fiscal year 1994 estimates reflect rescissions enacted in Public Law 103-211.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 9. R&D budget authority for the National Institutes of Health (NIH), fiscal years 1993-95

Agency	1993 actual	1994 estimated 1/	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	9,765	10,322	10,851	5.1
National Cancer Institute	1,932	2,025	2,138	5.6
National Heart, Lung, and Blood Institute	1,168	1,227	1,274	3.8
National Institute of Allergy and Infectious Diseases	961	1,042	1,097	5.3
National Institute of General Medical Sciences	736	769	802	4.2
National Institute of Diabetes and Digestive and Kidney Diseases	654	687	712	3.7
National Institute of Neurological Disorders and Stroke	585	616	639	3.7
National Institute of Mental Health	553	582	605	4.1
National Institute of Child Health and Development	509	536	561	4.7
National Institute on Drug Abuse	396	417	435	4.4
National Institute on Aging	387	407	422	3.6
National Center for Research Resources	310	322	342	6.0
National Eye Institute	268	282	293	3.7
National Institute of Environmental Health Sciences	240	253	263	3.8
National Institute of Arthritis and Musculoskeletal and Skin Diseases	205	216	223	3.7
National Institute on Alcohol Abuse and Alcoholism	173	180	187	3.7
National Institute of Dental Research	155	163	169	3.8
National Institute of Deafness and Other Communicative Diseases	150	158	163	3.6
National Center for Human Genome Research	102	124	149	19.6
National Library of Medicine	38	46	61	33.1
National Center for Nursing Research	44	46	48	4.1
John E. Fogarty International Center	20	22	23	6.6
Office of the Director	178	219	244	11.4
Women's Health Study	43	61	61	0.0
Minority Health Study	41	56	66	17.9
Other research expenses	94	102	117	14.6
Unallocated rescission (applied to NIH administrative costs related to R&D)	0	-18	0	NA

1/ Fiscal year 1994 estimates reflect rescissions enacted in Public Law 103-211.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Departmental submission to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the NIH budget office.

Space Research and Technology

The National Aeronautics and Space Administration (NASA) funds all R&D that is specifically budgeted in space flight, research, and supporting activities (subfunction 252). R&D budget authority is proposed to increase 6 percent in 1995, to $7.7 billion, and to account for 11 percent of total Federal R&D funds. As recently as 1986 space accounted for a 5-percent share of the R&D total. NASA R&D programs reflect priorities set by the National Space Policy, under which NASA is charged with conducting a balanced program of manned and unmanned exploration, accelerating the pace of scientific investigations in space, and developing space technologies to meet the long-range goal of expanding human presence in the solar system. NASA budget categories have been greatly changed in fiscal year 1995, partly to reflect the administration's strategy of spending less on human space flight and more on science, aeronautics, and technology development.

- The budget proposes a 6-percent decrease in R&D, to $1.9 billion. The Space Station program underwent a redesign exercise last year and has been dramatically refocused into a major international project with Russia invited as a new partner. At a proposed 1995 funding level of $1.9 billion, the Space Station accounts for 24 percent of total space R&D budget authority.

- NASA's science programs are comprised of three budget categories: Space Science, Life and Microgravity Sciences and Applications, and Mission to Planet Earth (MTPE). These categories will comprise 59 percent of total space R&D budget authority. Space Science, having the largest budget ($2.5 billion) of the three categories, is composed of physics and astronomy programs, as well as planetary exploration projects. Life and Microgravity Sciences and Applications will be budgeted for $608 million and is responsible for conducting space research in the areas of biology, biomedicine, biotechnology, combustion, fluid dynamics, and materials sciences. MTPE is NASA's contribution to the U.S. Global Change Research Program and will get $1.4 billion in 1995. The project is designed to study changes in the Earth's global environment.

Table 10. R&D budget authority for space research and technology (252), fiscal years 1993-95

Funding Category	1993 actual	1994 estimated 1/	1995 proposed 2/	Percent change 1994-1995 2/
	[In millions of dollars]			
Total	6,988	7,212	7,665	6.3
National Aeronautics and Space Administration (NASA):				
Space Station	2,253	1,989	1,869	-6.0
Space transportation capability development programs	762	775	149	-80.8
Space science	1,983	2,531	2,546	0.6
Physics and astronomy	1,272	1,225	1,226	0.1
Planetary exploration	484	713	712	-0.1
Life and microgravity sciences	228	593	608	2.5
Mission to Planet Earth	1,253	1,171	1,385	18.3
Advanced concepts and technology	561	578	742	28.3
Safety, reliability and quality assurance	51	55	NA	NA
Tracking and data acquisition	26	22	NA	NA
Academic programs	98	92	104	13.7
Launch services	NA	NA	363	NA
Mission communication services	NA	NA	507	NA

1/ Fiscal year 1994 estimates reflect rescissions and supplementals enacted in Public Law 103-211.

2/ NASA has proposed a restructuring of its budget beginning in FY 1995. Because the activities classified as R&D differ, the fiscal year 1995 totals are not comparable with prior year figures.

NOTES: Includes funds for research and research program management, but excludes fixed capital equipment costs. Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; budget justification documents; and supplemental data obtained from the NASA budget.

General Science

Research activities in general science (subfunction 251), of which 94 percent are basic research, are funded by the National Science Foundation and the Department of Energy. These activities are seen as contributing more broadly to the Nation's scientific and engineering base than are basic research programs that support agency missions. Total research support in general science is proposed to increase by 6 percent in 1995, to $2.9 billion. Of this research total 77 percent is slated for NSF and 23 percent, for DOE.

- NSF is to receive $2.2 billion in research budget authority, representing an increase of $188 million, or 9 percent, over 1994 funding levels. Funding increases are proposed for six of NSF's seven research directorates and for the U.S. Polar Research Programs, for which NSF has primary responsibility. The Education and Human Resources Directorate will show a slight drop (0.4 percent) in R&D funding.

- Funds for mathematics and physical sciences will increase by 8 percent and account for 30 percent—$656 million—of the proposed NSF research budget authority.

- A 10-percent increase is proposed for NSF's Engineering Directorate, bringing its funding to $320 million in 1995. Of this total, $63 million is proposed for the 22 Engineering Research Centers and 55 State-Industry-University Cooperative Research Centers for which NSF provides funding.

- NSF's Computer and Information Science and Engineering Directorate is to receive $29 million more for research in 1995, or a 14-percent increase. This directorate provides funds for efforts in five strategic initiatives: (1) High Performance Computing and Communications, (2) Advanced Manufacturing Technology, (3) Advanced Materials Processing, (4) Biotechnology, and (5) Science Mathematics, Engineering, and Technology Education.

- General science programs at DOE are to decrease by 6 percent, to $647 million. Research funding for the Superconducting Super Collider has been canceled by congressional action. Research in other high energy physics programs is to decrease by 4 percent, or $18 million. Nuclear physics research is to fall by 9 percent, or $20 million.

Table 11. R&D budget authority for general science and basic research (251), fiscal years 1993-95

Funding category	1993 actual	1994 estimated 1/	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	2,691	2,717	2,866	5.5
National Science Foundation (NSF)	1,883	2,031	2,219	9.3
Mathematical and physical sciences	576	606	656	8.2
Geosciences	373	395	434	9.7
Biological sciences	271	288	314	9.1
Engineering	256	292	320	9.7
Computer and information science and engineering	188	212	241	13.7
U.S. polar research programs	49	54	58	8.8
Social, behavioral, and economic sciences	77	84	96	14.6
Education and human resources	91	100	99	-0.4
Budget authority adjustment	1	0	0	NA
Department of Energy	808	686	647	-5.6
High energy physics	477	471	453	-4.0
Nuclear physics 2/	226	215	195	-9.3
Superconducting Super Collider 3/	104	0	0	NA

1/ Fiscal year 1994 estimates reflect rescissions enacted in Public Law 103-211.

2/ For fiscal year 1993, includes funding for the Los Alamos Meson Physics Facility (LAMPF), which was provided in Department of Energy's Weapons R&D appropriation (function 050) instead of General Science.

3/ None of the funding provided for the termination of the SSC in fiscal years 1994 and 1995 is classified as support for R&D.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; budget justification documents; and supplemental data obtained from the agencies' budget offices.

Energy

Three agencies provide support for R&D activities in energy (function 270): the Department of Energy, which provides 94 percent of the funding in this area; the Tennessee Valley Authority (TVA); and the Nuclear Regulatory Commission (NRC). Total energy R&D budget authority is proposed to be $2.9 billion in 1995, reflecting a 3-percent increase.

- The DOE energy budget is proposed to increase 3 percent, to $2.8 billion, in 1995. Energy budgets for TVA and NRC will increase 2 percent and 3 percent, respectively. Overall funding for energy-related basic research is proposed to reach $990 million, representing a 4-percent gain.

- Proposed 1995 R&D budget authority for DOE fossil fuel programs—including the Clean Coal Technology Demonstration Program—is expected to decrease 25 percent in 1995.

- R&D on energy conservation is proposed to increase 39 percent, or $130 million, to $465 million.

- A 27-percent increase is proposed for solar and renewable energy (includes solar energy, hydrogen research, geothermal energy, and hydropower) research—to $285 million in 1995. The proposed growth in this area is a strong indicator of the administration's commitment to develop environmentally friendly sources of energy consistent with the White House Global Climate Change Action Plan.

- Magnetic fusion R&D is to decrease slightly, from $307 million to $306 million. However, enthusiasm for this area appears to be high following the recent success of the Tokamak Fusion Test Reactor at the Princeton Plasma Physics Laboratory, where a world record 6 million watts of fusion power was produced. Nuclear fission energy R&D is slated to fall to $134 million in 1995.

- Basic energy sciences, which support both research and scientific facilities, are to receive a $21 million, or 4-percent, increase, to $619 million.

- DOE biological and environmental research programs promote the development and application of biotechnology for purposes of health and environment. Proposed R&D in this area is to increase 2 percent, to $331 million. Research on the Human Genome is to account for 21 percent of this total.

Table 12. R&D budget authority for energy (270), fiscal years 1993-95

Funding category	1993 actual	1994 estimated 1/	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	2,677	2,854	2,943	3.1
Department of Energy	2,486	2,675	2,758	3.1
Fossil energy (271)	324	562	421	-25.1
Clean coal technology 2/	0	225	37	-83.5
Cooperative R&D	10	10	7	-32.1
Petroleum, coal, and gas program	314	328	378	15.2
Energy supply (271)	1,818	1,778	1,872	5.3
Nuclear fission	283	151	134	-11.3
Magnetic fusion	300	307	306	-0.4
Solar energy	156	191	243	27.4
Energy storage systems	9	16	11	-30.3
Electric energy systems	30	26	35	35.3
Hydrogen 3/	NA	10	6	-43.3
Geothermal energy	21	21	35	64.8
Hydropower	2	2	1	-7.1
Energy research analysis	4	4	4	-4.7
Environment, safety, and health	14	16	16	0.8
Small business innovative research	50	0	0	NA
Technology transfer	10	38	54	40.9
Advanced neutron source	0	16	12	-25.4
Basic energy sciences	580	598	619	3.6
University and science education 4/	56	56	58	2.7
Multiprogram lab support	0	2	7	301.6
Biological and environmental research	305	324	331	2.0
Human genome	61	63	70	11.0
All other research	245	261	261	-0.1
Uranium enrichment 5/ (271)	67	0	0	NA
Energy conservation (272)	277	335	465	39.0
Tennessee Valley Authority (271)	72	65	66	2.0
Nuclear Regulatory Commission	120	115	119	3.5
Energy information, policy, and regulation (276)	120	115	119	3.5

1/ Fiscal year 1994 estimates reflect rescissions enacted in Public Law 103-211.

2/ For fiscal year 1993, funding for the clean coal technology program was provided out of prior year appropriations.

3/ Prior to fiscal year 1994, hydrogen research was funded under Energy Storage Systems.

4/ For fiscal year 1993, budget authority for most university and science education activities was provided under the Atomic Energy Defense function (050).

5/ DOE's uranium enrichment R&D activities were transferred to the U.S. Enrichment Corporation on July 1, 1993.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE : Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; DOE's budget justification documents; and supplemental data obtained from the agencies' budget offices.

All Other Functions

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Table 13. R&D budget authority for natural resources and environment (300), fiscal years 1993-95

Funding category	1993 actual	1994 estimated	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	1,802	1,992	1,998	0.3
Pollution control and abatement (304)				
Environmental Protection Agency	509	533	571	7.1
Air quality	131	128	116	-8.9
Multimedia research	165	212	272	28.6
Water quality	31	29	25	-14.0
Drinking water	20	20	19	-3.7
Pesticides	15	14	16	9.0
Hazardous waste 1/	43	32	29	-10.6
Toxic substances	26	25	23	-8.8
Radiation	1	NA	NA	NA
Superfund research	70	64	61	-3.7
Leaking underground storage tanks (LUST)	1	1	1	3.4
Oil spill response research 1/	0	2	2	0.4
Program management and support	6	7	7	3.0
Conservation and land management (302)	195	199	210	5.6
Forest Service (USDA)	183	193	204	5.6
Department of Interior 2/, 3/	12	6	6	3.9
Recreational resources (303)	125	185	196	5.7
National Biological Survey 3/ (Interior)	0	166	176	6.5
Fish and Wildlife Service 3/ (Interior)	87	NA	NA	NA
National Park Service (Interior)	39	20	20	-0.5
Water resources (301)	57	64	59	-7.3
Corps of Engineers (DOD)	50	57	54	-6.3
Bureau of Reclamation (Interior)	8	6	5	-15.8
Other natural resources (306)	915	1,011	963	-4.8
Geological Survey (Interior)	357	358	359	0.2
National Oceanic and Atmospheric Administration (Commerce)	447	547	504	-7.8
Bureau of Mines (Interior)	111	106	99	-6.4

1/ Prior to FY 1994, oil spill research was funded under the Hazardous Waste program.

2/ Includes Bureau of Land Management, Office of Surface Mining and Reclamation, Minerals Management Service, and Office of the Secretary.

3/ Most R&D activities of the Fish and Wildlife Service, National Park Service, and Bureau of Land Management were transferred to the National Biological Survey in FY 1994.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 14. R&D budget authority for other natural resources (306), fiscal years 1993-95

Funding category	1993 actual	1994 estimated	1995 proposed	Percent change 1994-1995
	[In millions of dollars]			
Total	915	1011	963	-4.8
U.S. Geologic Survey (Interior)	357	358	359	0.2
Geologic and mineral resource surveys and mapping	222	219	213	-2.6
Water resources investigations	112	119	116	-2.4
National mapping, geography, and survey	22	21	19	-9.2
Critical ecosystems research and analysis	0	0	11	NA
National Oceanic and Atmospheric Administration (Commerce)	447	547	504	-7.8
Oceanic and atmospheric research	141	156	179	14.5
Climate and global change	43	57	76	33.4
All other research	98	99	103	3.6
National Marine Fisheries Services	170	177	207	17.1
Fishery products promotion and development 1/	6	7	6	-11.1
All other research	164	170	201	18.2
National Ocean Service	18	17	17	0.2
National Weather Service	28	28	33	17.6
National Environmental Satellite, Data, and Information Service	8	8	8	0.0
Program support	53	51	51	1.2
Fleet modernization, shipbuilding, and conversion	29	67	9	-87.2
Aircraft procurement and modernization	0	43	0	-100.0
Bureau of Mines (Interior)	111	106	99	-6.4

1/ Actual functional code is 376, other advancement of commerce.

NOTE: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 15. R&D budget authority for agriculture (352), fiscal years 1993-95

Funding category	1993 actual	1994 estimated 1/	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	1,152	1,188	1,190	0.2
Department of Agriculture				
Agricultural Research Service	630	655	672	2.6
Research on plant sciences	236	240	241	0.5
Research on commodity conversion and delivery	124	134	152	13.5
Research on animal sciences	105	112	108	-3.3
Research on soil, water, and air sciences	80	82	81	-1.8
Research on human nutrition	49	49	53	7.5
Integration of agricultural systems	25	28	27	-1.3
Contributed funds for cooperative research	11	12	12	0.0
Cooperative State Research Service	419	429	407	-5.1
National Research Initiative	98	103	130	26.1
Plant systems	40	40	47	16.5
Animal systems	25	23	30	28.4
Natural resources and environment	18	22	27	23.7
Nutrition, food quality, and health	7	7	11	49.6
Processes and new products	4	7	9	30.6
Rural development, markets, and trade	4	4	7	76.8
Payments under the Hatch Act	169	171	171	0.0
Special research grants	73	71	30	-58.1
Payments to 1890 colleges and Tuskegee Institute (Evans-Allen)	27	28	28	0.0
McIntire-Stennis cooperative forestry	19	21	21	0.0
Other research programs	19	20	21	4.7
Administration	14	15	7	-56.0
Economic Research Service	59	55	54	-2.8
Animal & Plant Health Inspection Service	15	15	14	-2.4
Human Nutrition Information Service	8	11	18	65.8
National Agricultural Statistics Service	4	3	4	1.1
Agricultural Cooperative Service	3	2	4	47.6
Agricultural Marketing Service	5	5	5	-1.3
Federal Grain Inspection Service	2	2	2	0.0
Office of International Cooperation and Development	2	1	1	0.9
Alternative agricultural research and commercialization	7	9	9	0.0

1/ Fiscal year 1994 estimates reflect rescissions enacted in Public Law 103-211.

NOTE: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: USDA's submission to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities;" budget justification documents; and supplemental data obtained from the USDA's budget office.

Table 16. R&D budget authority for transportation (400), fiscal years 1993-95

Budget function	1993 actual	1994 estimated 1/	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	1,703	1,892	1,999	5.7
Air transportation (402)	1,368	1,561	1,595	2.2
National Aeronautics and Space Admin 2/	1,117	1,285	1,307	1.7
Aeronautical research and technology	1,107	1,257	1,307	4.0
Transatmospheric research and technology	11	28	NA	NA
Federal Aviation Administration (DOT)	250	275	288	4.7
Ground transportation (DOT) (401)	301	299	372	24.5
Federal Highway Administration	221	239	293	22.8
National Highway Traffic Safety Administration	32	25	25	-0.8
Federal Railroad Administration	24	19	29	54.1
Federal Transit Administration	24	16	24	56.2
Water transportation (DOT) (403)	29	24	23	-1.3
U.S. Coast Guard	27	22	20	-10.0
Maritime Administration	2	2	4	107.9
Other transportation (DOT) (407) 3/	6	9	9	-4.7

1/ Fiscal year 1994 estimates reflect rescissions and supplementals enacted in Public Law 103-211.

2/ Includes funds for research and research program management.

3/ Includes Office of the Secretary and the Research and Special Programs Administration.

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

KEY: NA = Not applicable

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 17. R&D budget authority for education, training, employment, and social services (500), fiscal years 1993-95

Budget function	1993 actual	1994 estimated	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	348	349	364	4.3
Research and general education aids (501, 502, 503)	230	234	240	2.5
Department of Education programs	120	122	125	2.2
Smithsonian Institution programs	110	112	115	2.7
Social services (506)	67	65	65	0.8
Administration for Children and Families (DHHS)	17	15	16	2.2
Rehabilitation services (Education)	50	50	50	0.4
Training and employment (504) (Labor's Employment and Training Admin.)	38	38	40	6.6
Other labor services (505) (Labor)	13	13	19	48.7

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 18. R&D budget authority for the Agency for International Development (AID) (151), fiscal years 1993-95

Funding category	1993 actual	1994 estimated	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	382	321	314	0.0
Agency for International Development (AID):				
Global Programs (R&D)	251	167	162	-3.1
Asia	16	10	10	8.6
Africa	72	84	73	-13.3
Near East	13	15	15	-1.6
Latin America	19	15	21	41.6
Newly independent states	3	21	23	9.2
Private enterprise	2	0	1	667.9
Program and policy coordination	7	5	10	98.1
Directorate for finance and admin	0	5	0	-100.0

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: AID submission to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the AID budget office.

Table 19. R&D budget authority for commerce and housing credit (376), fiscal years 1993-95

Funding category	1993 actual	1994 estimated	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	220	375	694	85.0
Department of Commerce				
National Institute of Standards and Technology (NIST)	210	366	684	87.1
Electronics & electrical engineering	25	29	30	3.4
Manufacturing engineering	10	13	29	127.2
Chemical science and technology	18	21	29	37.0
Physics	24	24	25	3.1
Materials science	28	31	48	52.7
Building and fire research	12	12	13	3.6
Computer systems	11	26	61	135.6
Applied math & scientific computing	7	7	7	4.6
Technology assistance	2	3	2	-32.8
Research support activities	10	11	13	12.1
Industrial technology services advanced technology program	64	188	428	127.7
Bureau of the Census	5	5	6	7.5
National Telecommunications and Information Administration	4	4	4	1.5

NOTES: Because of rounding, components may not add to totals. Percentage change derived from unrounded data.

SOURCE: Departmental submission to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 20. R&D budget authority for veterans benefits and services (700), fiscal years 1993-95

Funding category	1993 actual	1994 estimated	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	250	270	231	-14.4
Department of Veterans Affairs				
Medical and prosthetic research	250	270	231	-14.4

NOTES: Includes administration and operating expenses related to the VA's research.

SOURCE: Departmental submission to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities."

Table 21. R&D budget authority for community and regional development (450), fiscal years 1993-95

Funding category	1993 actual	1994 estimated	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	57	72	81	12.6
Tennessee Valley Authority	34	37	41	11.2
Department of Housing and Urban Development	23	35	40	14.3
Department of Commerce Economic Development Administration	0	1	1	0.0

NOTE: Because of rounding, components may not add to the totals shown. Percentage change is derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities", and supplemental data obtained from the agencies' budget offices.

Table 22. R&D budget authority for general government (800), fiscal years 1993-95

Funding category	1993 actual	1994 estimated	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	0	1	0	-100.0
Department of Treasury Engraving and Printing	(1/)	1	0	-100.0

1/ Less than $500,000.

NOTE: Percentage change is derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities", and supplemental data obtained from the agencies' budget offices.

Table 23. R&D budget authority for administration of justice (750), fiscal years 1993-95

Funding category	1993 actual	1994 estimated	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	49	51	50	-0.5
Department of Justice	43	42	42	0.4
Office of Justice Programs	28	27	28	2.6
Federal Bureau of Investigation	7	7	6	-7.7
Federal Prison System	6	6	6	-1.7
Drug Enforcement Administration	1	2	2	0.0
Immigration and Naturalization Service	1	1	1	10.2
Department of Treasury	6	9	9	-4.5
U.S. Customs Service	4	7	7	-5.7
Financial Crimes Enforcement Network	2	2	2	0.0

NOTE: Because of rounding, components may not add to the totals shown. Percentage change is derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 24. R&D budget authority for income security (600), fiscal years 1993-95

Funding category	1993 actual	1994 estimated	1995 proposed	Percent change 1994-95
	[In millions of dollars]			
Total	36	61	50	-18.3
Department of Health and Human Services	33	58	47	-18.8
Social Security Administration	25	46	30	-34.6
Office of the Secretary	8	12	17	41.7
Department of Labor	4	4	3	-11.1
Pension Benefit Guarantee Corporation	1	1	1	-48.8
Pension and Welfare Benefits Admin	3	3	3	3.4

NOTE: Because of rounding, components may not add to the totals shown. Percentage change is derived from unrounded data.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Historical Tables

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Table 25a. Federal R&D obligations, by selected budget function, fiscal years 1955-60

[In millions of dollars]

Budget function	1955	1956	1957	1958	1959	1960
Total	2,533	2,988	3,932	4,570	6,694	7,522
National defense	2,151	2,535	3,327	3,801	5,556	6,107
Health	67	83	140	177	233	305
All other functions	315	370	465	592	904	1,140

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25b. Federal R&D obligations, by selected budget function, fiscal years 1961-66

[In millions of dollars]

Budget function	1961	1962	1963	1964	1965	1966
Total	9,059	10,290	12,495	14,225	14,614	15,320
National defense	7,005	7,238	7,764	7,829	7,342	7,536
Health	405	551	626	728	792	900
Space research and technology	777	1,413	2,812	4,241	4,887	4,976
Energy	373	448	515	571	585	575
General science	137	187	246	277	304	377
Natural resources and environment	73	108	120	134	159	189
Transportation	55	101	142	122	147	251
Agriculture	125	136	146	165	195	201
All other functions	108	107	125	160	203	315

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25c. Federal R&D obligations, by budget function, fiscal years 1967-72

[In millions of dollars]

Budget function	1967	1968	1969	1970	1971	1972
Total	16,529	15,921	15,641	15,339	15,543	16,496
National defense	8,566	8,275	8,356	7,981	8,110	8,902
Health	915	1,021	1,088	1,084	1,288	1,547
Space research and technology	4,778	4,304	3,799	3,606	3,048	2,932
Energy	600	657	597	574	556	574
General science	409	437	433	452	513	625
Natural resources and environment	320	331	323	340	416	479
Transportation	380	304	404	535	728	558
Agriculture	218	217	221	238	259	294
Education, training, employment, and social services	154	166	169	164	215	235
International affairs	18	17	26	32	32	29
Veterans benefits and services	41	45	50	59	63	69
Commerce and housing credit	43	48	54	79	90	50
Community and regional development	37	44	32	47	65	66
Administration of justice	(1/)	1	5	9	10	23
Income security	48	50	78	136	145	106
General government	3	5	5	6	7	8

1/ Less than $500,000

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities", and supplemental data obtained from the agencies' budget offices.

Table 25d. Federal R&D obligations, by budget function, fiscal years 1973-77

[In millions of dollars]

Budget function	1973	1974	1975	1976	1977
Total	16,800	17,410	19,039	20,780	23,450
National defense	9,002	9,016	9,679	10,430	11,864
Health	1,585	2,069	2,170	2,351	2,629
Space research and technology	2,824	2,702	2,764	3,130	2,832
Energy	630	759	1,363	1,649	2,562
General science	658	749	813	858	974
Natural resources and environment	554	516	624	683	753
Transportation	572	693	635	631	708
Agriculture	308	313	342	383	457
Education, training, employment, and social services	290	236	239	255	230
International affairs	28	24	29	42	66
Veterans benefits and services	74	85	95	98	107
Commerce and housing credit	50	51	65	69	71
Community and regional development	78	82	93	109	101
Administration of justice	33	35	44	35	30
Income security	106	71	72	48	55
General government	7	9	12	12	13

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25e. Federal R&D budget authority, by budget function: fiscal years 1978-83

[In millions of dollars]

Budget function	1978	1979	1980	1981	1982	1983
Total	25,976	28,208	29,739	33,735	36,115	38,768
National defense	12,899	13,791	14,946	18,413	22,070	24,936
Health	2,968	3,401	3,694	3,871	3,869	4,298
Space research and technology	2,939	3,136	2,738	3,111	2,584	2,134
Energy	3,134	3,461	3,603	3,501	3,012	2,578
General science	1,050	1,119	1,233	1,340	1,359	1,502
Natural resources and environment	904	1,010	999	1,061	965	952
Transportation	768	798	887	869	791	876
Agriculture	501	552	585	659	693	745
Education, training, employment and social services	345	354	468	298	228	189
International affairs	57	117	125	160	165	177
Veterans benefits and services	111	123	126	143	139	157
Commerce and housing credit	77	93	101	106	104	107
Community and regional development	92	127	119	104	63	44
Administration of justice	44	47	45	34	31	37
Income security	67	57	47	43	32	32
General government	20	23	22	22	10	6

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25f. Federal R&D budget authority, by budget function: fiscal years 1984-89

[In millions of dollars]

Budget function	1984	1985	1986	1987	1988	1989
Total	44,214	49,887	53,249	57,069	59,106	62,115
National defense	29,287	33,698	36,926	39,152	40,099	40,665
Health	4,779	5,418	5,565	6,556	7,076	7,773
Space research and technology	2,300	2,725	2,894	3,398	3,683	4,555
Energy	2,581	2,389	2,315	2,115	2,155	2,436
General science	1,676	1,862	1,873	2,042	2,160	2,373
Natural resources and environment	963	1,059	1,062	1,133	1,160	1,255
Transportation	1,040	1,030	917	908	896	1,064
Agriculture	762	836	815	822	882	907
Education, training, employment and social services	200	220	248	267	285	347
International affairs	192	210	211	223	224	279
Veterans benefits and services	218	193	183	215	195	212
Commerce and housing credit	110	114	111	110	122	128
Community and regional development	46	50	59	37	79	57
Administration of justice	24	47	41	49	51	45
Income security	26	21	14	25	23	27
General government	8	17	14	17	17	15

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; and supplemental data obtained from the agencies' budget offices.

Table 25g. Federal R&D budget authority, by budget function, fiscal years 1990-95

[In millions of dollars]

Budget function	1990	1991	1992	1993 2/	estimated 1994 2/	proposed 1995
Total	63,781	65,898	68,398	69,884	68,311	71,361
National defense	39,925	39,328	40,061	41,249	38,020	39,496
Health	8,308	9,226	10,055	10,280	10,936	11,417
Space research and technology	5,765	6,511	6,744	6,988	7,212	7,665
Energy	2,726	2,953	3,153	2,677	2,854	2,943
General science	2,410	2,635	2,659	2,691	2,717	2,866
Natural resources and environment	1,386	1,582	1,688	1,802	1,992	1,998
Transportation	1,045	1,231	1,523	1,703	1,892	1,999
Agriculture	950	1,052	1,155	1,152	1,188	1,190
Education, training, employment, and social services	374	433	365	348	349	364
International affairs	375	378	371	382	321	314
Veterans benefits and services	216	219	245	250	270	231
Commerce and housing credit	140	178	192	220	375	694
Community and regional development	67	88	95	57	72	81
Administration of justice	44	51	51	49	51	50
Income security	33	30	37	36	61	50
General government	17	4	4	(1/)	1	0

1/ Less than $500,000

2/ Fiscal year 1993 and 1994 estimates reflect rescissions and supplementals enacted in Public Law 103-211.

NOTE: Data for 1990-93 are actual budget authority. Data for 1994 are estimated, and data for 1995 are proposed based on the fiscal year 1995 budget.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 26a. Budget authority for basic research, by budget function, fiscal years 1978-83

[In millions of dollars]

Budget function	1978	1979	1980	1981	1982	1983
Total	3,665	4,108	4,716	5,107	5,305	6,247
Health	1,246	1,579	1,761	1,951	1,953	2,475
General science	962	1,026	1,152	1,256	1,296	1,439
Space research and technology	412	440	482	445	434	501
National defense	320	365	552	610	696	788
Energy	157	172	200	220	260	320
Agriculture	197	222	246	281	295	326
Natural resources and environment	207	131	136	131	139	156
Transportation	70	75	79	89	102	117
Education, training, employment, and social services	57	59	61	66	78	70
Commerce and housing credit	9	10	15	17	17	19
Veterans benefits and services	9	10	14	15	13	14
Administration of justice	10	10	9	5	4	4
Community and regional development	8	8	8	5	7	6
General government	0	1/	1/	3	2	3
International affairs	1/	0	0	12	10	10
Income security	2	1	1	3	0	0

1/ Less than $500,000

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 26b. Budget authority for basic research, by budget function, fiscal years 1984-89

[In millions of dollars]

Budget function	1984	1985	1986	1987	1988	1989
Total	7,072	7,810	8,193	9,021	9,553	10,648
Health	2,813	3,243	3,324	3,851	4,087	4,413
General science	1,606	1,779	1,795	1,942	2,061	2,265
Space research and technology	646	498	737	843	944	1,099
National defense	845	856	960	900	905	965
Energy	365	428	456	511	571	703
Agriculture	353	406	390	397	428	433
Natural resources and environment	192	206	204	206	210	331
Transportation	125	255	184	231	197	287
Education, training, employment, and social services	77	86	83	78	83	92
Commerce and housing credit	20	23	26	26	28	29
Veterans benefits and services	15	15	15	17	17	16
Administration of justice	5	4	5	8	8	7
Community and regional development	5	6	6	4	7	3
General government	3	4	5	4	5	3
International affairs	3	4	5	3	3	3
Income security	0	0	0	0	0	0

NOTE: Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11, Exhibit 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

Table 26c. Budget authority for basic research, by budget function, fiscal years 1990-95

[In millions of dollars]

Budget function	1990	1991	1992	1993	estimated 2/ 1994	proposed 1995
Total	11,288	12,405	12,973	13,440	13,743	14,219
Health	4,661	5,021	5,506	5,700	5,977	6,270
General science	2,306	2,526	2,532	2,553	2,559	2,691
Space research and technology	1,389	1,479	1,499	1,588	1,662	1,672
National defense	964	1,188	1,147	1,323	1,212	1,232
Energy	761	878	921	917	950	990
Agriculture	456	486	528	553	572	587
Natural resources and environment	336	389	383	376	379	366
Transportation	242	246	266	238	232	194
Education, training, employment, and social services	106	115	118	121	125	132
Commerce and housing credit	31	39	35	34	37	49
Veterans benefits and services	16	16	16	16	16	14
Administration of justice	9	6	5	5	5	5
Community and regional development	3	10	11	10	10	12
General government	3	0	0	0	0	0
International affairs	4	6	6	8	6	7
Income security	0	0	0	0	(1/)	(1/)

1/ Less than $500,000

2/ Fiscal year 1994 estimates reflect rescissions enacted in Public Law 103-211.

NOTE: Data for 1990-93 are actual budget authority. Data for 1994 are estimated, and data for 1995 are proposed based on the fiscal year 1995 budget. Because of rounding, components may not add to the totals shown.

SOURCE: Agencies' submissions to Office of Management and Budget Circular No. A-11 44A, "Research and Development Activities"; agency budget justification documents; and supplemental data obtained from the agencies' budget offices.

SELECTED BIBLIOGRAPHY

American Association for the Advancement of Science. AAAS Report XIX. *Research and Development FY 1995*. Washington, DC: 1994.

Congressional Research Service/Library of Congress. CRS Issue Brief. *Research and Development Funding: Fiscal Year 1995*. Washington, DC: March 1994.

National Science Board. *Science & Engineering Indicators, 1993*. Washington, DC: 1993.

Office of Management and Budget. *Budget of the United States Government, Appendix, Fiscal Year 1995*, Washington, DC: 1994.

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